

DISCUSSION OF THE AMENDMENT

Claims 1, 3-12, 14-22, 24-28, 30-38, 40 and 46-51 are active in the present application. Claims 49-52 are new claims. Support for new Claim 49 is found on page 10, line 24. Support for new Claims 50 and 51 is found on page 17, lines 4-5. Support for new Claim 52 is found in the examples which disclose fibrous materials having surfaces onto which only an adhesion promoter has been applied

No new matter is added.

REMARKS/ARGUMENTS

Applicants thank the Office for withdrawing the rejections over the Guiver, “Silane Coupling Agents,” and “Inorganic Polymer Engineering Materials” references set forth in previous Office Actions.

The Office now asserts that the claims are obvious over a combination of Penth (U.S. 6,309,545), cited in previous Office Actions, in combination with Bishop (U.S. 5,324,579) newly cited in the December 12 Office Action. The Office acknowledges Penth fails to disclose the glycidyloxy and methacryloyloxy-functionalized silanes recited in present Claim 1. To make up for this deficiency the Office cites to Bishop. The Office points to column 2, line 31-column 4, line 39 as evidence that Bishop discloses that glycidyloxy and methacryloyloxy-functionalized silanes are equivalent to the silanes disclosed in the Penth patent. From this basis the Office asserts that it would have been obvious to use the silane coupling agents disclosed in Bishop to improve adhesion between substrates and metal oxides in the structures of Penth.

Applicants traverse the rejection for the reason, *inter alia*, that Bishop does not disclose or suggest that glycidyloxy-and/or methacryloyloxy-functionalized silanes may be used to improve adhesion between metal oxide materials (e.g., ceramics) and thermoplastic fibers such as those recited in the present claims. In fact, Bishop makes it clear that the Bishop adhesive compositions provide improved bonding between surfaces such as glass, metal and metal oxides to **thermosetting** resins.

The Abstract discloses:

The silane compositions of the present invention are adhesive compositions providing improved bonding of surfaces such as glass, metal and metal oxides to **thermosetting** resins.

Bishop nowhere suggests or discloses that any of the silane materials disclosed in the patent improve adhesion between thermoplastic fibers and, for example, ceramics. At best

Bishop discloses that improved adhesion occurs between thermosetting resins and certain materials used for making printed circuit boards. In contrast, present Claim 1 recites certain nonwoven polymeric fibers. The nonwoven polymeric fibers cited in Claim 1 are not thermosetting resins.

Applicants submit the Office failed to set forth the *prima facie* case of obviousness at least for the reason that the Office did not provide any link between the thermosetting resins of Bishop and the nonwoven polymeric fibers of the present claims. The Office broadly asserts that Bishop discloses the use of silane coupling agents for “resins” but the Office did not take into consideration the differences between the “thermosetting resins” of Bishop and the nonwoven polymeric fibers of the present claims.

For example, a thermosetting resin, such as one used to make a printed circuit board, is not a solid material until it has undergone curing at which point it becomes a solid non-fibrous mass. The thermosetting resin compositions of Bishop are substantially different from the polymeric nonwoven fibers recited in the present claims. The Office must put forth some reasoned technical explanation why one of ordinary skill in the art would expect that a thermosetting resin composition which includes a silane adhesive component dispersed therein would be in any way similar to a fibrous material having a silane coupling agent present only on the exterior of certain fibers (see new Claim 52 in this regard).

Applicants thus submit the rejection of the present claims over the combination of Penth and Bishop is not supportable and should be withdrawn.

Applicants further traverse the rejection in view of evidence of record teaching away from the presently claimed invention. In the Response to Notice of Non-Compliant Appeal Brief filed on the present application on October 16, 2008, it is pointed out that the Inorganic Polymer Engineering Materials reference cited in previous Office Actions includes disclosure which teaches away from the presently claimed invention (see page 15, last sentence of the

first full paragraph of the Inorganic Polymer Engineering Materials reference). This reference discloses that poor adhesion between glass fibers and a polymer matrix results when glycidyoxytrimethoxy silane is used as an adhesion promoter. Applicants submit that this disclosure would tend to teach away from the use of a glycidyoxy-functionalized silane as an adhesion promoter.

Likewise, the Silane Coupling Agents reference cited in previous Office Actions contains an explicit teaching away from the use of glycidyoxy and/or methacryloyloxy-functionalized silane compounds (see the last sentence and the third full paragraph on page 31 of the Silane Coupling Agents reference).

While the Office has not relied on the Silane Coupling Agents and Inorganic Polymer Engineering Materials references to support the rejections put forth in the December 12 Office Action, Applicants nonetheless assert that this evidence shows that those of skill in the art would not expect that glycidyoxy-and/or methacryloyloxy-functionalized silanes would be useful as adhesion promoters as presently claimed. In view of such a teaching away, Applicants submit that the rejection of the claims over the combination of Penth and Bishop is further not supportable and should be withdrawn.

The Office asserts that fiber size is related to pore size (see the paragraph bridging pages 10 and 11 of the Office Action). Applicants submit that there is no evidence of record supporting such an assertion. Especially in a nonwoven fibrous substrate, pore size may be related to many factors not only the size of fibers. In fact, the size of the fibers have only a small and/or insignificant effect on pore size depending on the method of manufacturing the nonwoven substrate (e.g., spun bonded textiles).

Applicants traverse the Office's assertion in the regard.

With regard to the rejection of Claims 32 and 34-38 which recite particular types of nonwoven polymeric fibers, the office asserts that Sassa (U.S. Patent No. 5,324,579)

discloses that combinations of certain fibers may be used for making filter materials. It appears that the Office is of the opinion that because Sassa discloses that it is known to make filter materials from certain synthetic plastic fibers; it would be obvious to coat such plastic fibers with an adhesion promoter and ceramic material such as that recited in the present claims. The Office's assertion in this regard represents nothing more than hindsight. Just because it is known that the filter membranes can be made from certain materials is no basis from which to conclude that it would be obvious to treat such a polymeric material with an adhesion promoter such as the glycidyoxy-and/or methacryloyloxy-functionalized silane of the present claims. The Office has put forth no evidentiary basis to show that one of ordinary skill in the art would be of the belief that like adhesion would occur and/or that the polymeric materials of Sassa would behave in the same way as the nonwoven polymeric fibers recited in the present claims.

OBVIOUSNESS-TYPE DOUBLE PATENTING

The Office now rejects the claims for obviousness-type double patenting in view of U.S. Application Nos. 10/504,144; 10/524,143; 10/524,669; 10/519,097; 10/575,268; 10/575,759; and 10/575,734 (see pages 1-8 of the December 12 Office Action). In each case the Office relied on Penth and Bishop in combination with the co-pending application as evidence that it would have been obvious to include certain adhesion promoters and/or fibers in the claims of the co-pending application.

As discussed above in detail, Applicants traverse the rejection of the claims in view of the combination of Penth and Bishop. In particular Bishop discloses the use of certain silane compositions for treating thermosetting resins, not for treating nonwoven polymeric fibers. As argued above, the Office failed to provide sufficient reasoning why one of ordinary skill in the art would use an silane component used to treat a thermosetting resin to treat a

thermoplastic, flexible polymeric nonwoven fiber such as those recited in the present claims.

For at least this reason, the Office's reliance on Penth and Bishop in combination with the claims of the co-pending applications is not a sufficient grounds to reject the claims for obviousness-type double patenting.

Applicants request withdrawal of the rejections.

For the reasons set forth above in detail, Applicants submit that the rejections should be withdrawn and all now-pending claims allowed.

Respectfully submitted,

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